

PRODUCTION AND SALES REPORT FOR 2008-2009



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Kinneloa Irrigation District

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Production and Sales Report for 2008-2009

SUMMARY OF PRODUCTION SOURCES, CUSTOMER SALES, RAINFALL, POWER COSTS AND LONG TERM STORAGE FOR THE WATERMASTER YEAR OF 2008-2009, JULY THROUGH JUNE

Production

The Kinneloa Irrigation District (KID) produced 841 acre-feet from our wells and tunnels during this period as shown in Table 1. This total includes 41 acre-feet of water delivered to the City of Pasadena. The net amount of 800 acre-feet was produced for our retail customers which was 4% less than the 833 acre-feet produced for retail customers last year.

Table 1 includes data for all production sources from 1994-1995 through 2008-2009 as well as for surface water and ground water which is diverted from our system for which we receive a spreading credit. Figure 1 shows a graphical representation of water produced during this thirteen-year time period. Figure 2 shows total production from the KID wells and tunnels. This year our wells produced approximately 73% of the water and the tunnels produced 27% of the water. The continuation of the drought has significantly reduced the tunnel production from a high of 530 acre-feet in 2005-2006 to 224 acre feet in 2008-2009. Figure 3 is a pie chart showing the percentage of total production by source.

Sales

Total sales to retail customers were 730 acre-feet as shown in Figure 4. The distribution of sales during the year is shown in Figure 5. Peak sales are usually in the July through September period and minimum sales usually occur in December through February period. Weather conditions in a particular year can cause these periods to shift and can drastically affect the total sales for the year. The KID has promoted conservation measures heavily over the past two years and has asked for a voluntary 10% reduction. The data indicates a 3% reduction this year and a total reduction of 14% over the two-year period. A typical distribution of monthly water usage per customer is shown in Figure 6. This distribution for June of 2008 and June 2009 shows that 94% of our customers use 100 units or less per month and 20% of our customers use 10 units or less per month. Each unit is equivalent to 748 gallons.

The difference between the water produced and water sold (which is the water loss for the system) was 70 acre-feet or 9% as shown in Table 1. The loss is attributed to system leaks, main flushing for water quality purposes, fire flow tests, unmetered water used for other purposes at KID facilities, water meter inaccuracies and normal operational procedures. A water loss of less than 10% is considered to be excellent by industry standards.

Rainfall

Rainfall for 2008-2009 was 16.1 inches as shown in Table 1 and 7 as compared to 24.6 inches in the previous year. Although the rainfall this year was close to the average of 24.6 inches for the past 15 years, sustained drought has continued to affect the tunnel production and may also affect groundwater pumping availability and cost.

Power Cost

Figure 8 shows the power cost per acre-foot of total production for 2008-2008 and for the previous 10 years. Since most of our power consumption is for pumping, it is also an approximate indirect measure of production efficiency. However it should be noted that this indicator does not take into account the percentage of well production vs. tunnel production nor does it take into account rising electrical rates. In years of high tunnel production, less water is pumped from our wells saving us considerable power cost. General electrical rates have increased approximately 6-7% a year for the last ten years. However we have been able to mitigate a portion of this increase by participating in various "time-of-use" and interruptible power programs that restrict our use of power to non-peak hours in exchange for lower rates. We have also installed higher-efficiency motors when equipment has been replaced. The net effect has been to stabilize our power costs over the past few years. The 2007-2008 cost was \$110 per acre-foot of total production as compared to \$107 per acre-foot for the previous year. However we have now taken advantage of virtually all potential cost-reduction power programs and our power companies appear to be cutting back on the credits given for off-peak pumping.

Long Term Storage

The Raymond Basin Management Board has a long term storage program to cover situations such as prolonged drought or unusually high demand that might lead to over pumping of our water rights in the current year. This program is the equivalent of a savings account for surplus water. The KID activated our long term storage account for the first time in 2004-2005 by adding 326 acre-feet of surplus water as shown in Table 1 and Figure 9. The following year we added additional storage to bring the account to 848 acre-feet. Some of this storage was used in 2006-2007 to support our water sales to the City of Pasadena so the remaining storage at the end of 2006-2007 was 729 acre-feet. The net addition to our long term storage in 2007-2008 was 69 acre-feet and the total was 798 acre-feet at the end of that year.

Due to declining water levels in the Raymond Basin, the Board voted to suspend the program and freeze the total at the end of the 2008-2009 year. The result is that we now have 790 acre-feet in the account that can still be used to offset any shortages in the future but we cannot add any surplus to the account. Although in the past it has sometimes been financially beneficial to the district to sell surplus water at a profit, recent events including the drought and the conditions in the Raymond Basin aquifer seem to indicate that there may be a greater value in having this water available in the future to reduce the need for purchasing imported water. This additional

water is especially important to the KID now that the Raymond Basin Management Board has also voted to reduce pumping by 6% each year for five years for a total reduction of 30% from adjudicated pumping rights to see if basin pumping levels can be stabilized without the injection of imported water which is also in short supply.

Production Issues

Table 1 shows that the Wilcox Well continues to be used for only 5.6 acre-feet of water as compared with 272.4 acre-feet in the peak year of 1999-2000. The declining level in the Raymond Basin aquifer at this facility has caused a 50% reduction in the available operational flow rate from this well because the output needs to be restricted to prevent entrainment of air and damage to the pump. This operational necessity is inefficient from a power standpoint and relegates this well to emergency and supplemental supply uses only. This also means that we must shift the lost production to the K-3 Well which now accounts for 73% of our total annual production. A continued decline in basin levels could also affect the K-3 Well in future years. The reality is that we have all “mined” the basin for many years and have not previously developed a replenishment source. As mentioned above, the court-ordered adjudication of pumping rights in the Raymond Basin no longer matches the natural replenishment rate.

The Raymond Basin Management Board and the water agencies that pump from the basin are aware of the difficulties we will all face if the current trend continues. We are collectively addressing the problem through engineering studies and consideration of additional water resources and conservation measures that could be used in-lieu of pumping from the basin in order to stabilize the level.

All water agencies in the area except for the KID purchase imported supplemental water from the Metropolitan Water District (MWD) or its wholesale distributor, Foothill Municipal Water District. The KID has not needed to purchase imported water except for occasional emergency or facility maintenance purposes because our local tunnel water and adjudicated pumping rights have been sufficient to meet customer demand. However, we did lease 300 acre-feet of local pumping rights from another water agency in order to help establish our long term storage account and will lease 50 acre-feet in 2009-2010 to serve as an “insurance policy” in case we have another dry year.

The condition of the basin as well as a possible reduction in the availability of imported water is presenting a serious challenge to the KID and other water agencies in the area. We will continue our conservation efforts as part of the long term solution which will include other water resources such as imported replenishment water when available and the increased use of recycled water for landscape irrigation.

The KID will also be exploring the physical and financial feasibility of constructing a dedicated connection for the purchasing of imported water in case our ground water pumping rights are permanently reduced.

Table 1

Production in Acre-Feet		1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Source																
Wilcox Well		93.2	119.6	170.2	165.4	209.6	272.4	216.9	203.7	213.7	148.9	60.2	37.2	70.2	5.6	5.6
K-3 Well		285.3	238.3	263.8	330.9	567.3	562.5	425.2	514.3	457.1	551.0	319.3	423.5	860.1	543.9	611.2
Total Well		378.5	357.9	434.0	496.3	776.9	834.9	642.1	718.0	670.8	699.9	379.5	460.7	930.3	549.5	616.7
Holly High/Low Tunnel		71.3	217.0	177.2	146.6	143.1	132.6	111.1	86.0	57.6	59.8	125.6	171.9	131.0	107.6	89.2
House Tunnel		37.8	43.9	35.4	33.1	41.1	31.5	26.2	21.5	16.7	12.7	12.6	44.9	26.5	20.6	12.8
Eucalyptus Tunnel		56.5	64.9	62.6	58.7	62.4	54.0	44.3	38.6	29.5	41.5	50.0	50.4	44.6	43.2	39.1
Delores Tunnel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	126.5	223.3	83.6	63.7	40.2
Far Mesa Tunnel		73.6	69.1	67.7	68.3	78.9	74.1	56.7	52.0	47.7	45.6	68.2	39.6	13.1	48.6	42.9
Total Tunnel		239.2	394.9	342.9	306.7	325.5	292.2	238.3	198.1	151.5	162.0	382.9	530.1	298.8	283.7	224.2
Total Production		617.7	752.8	776.9	803.0	1102.4	1127.1	880.4	916.1	822.3	861.9	762.5	990.8	1229.0	833.2	840.9
Deliveries from Pasadena		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5	0.0	0.0	18.8	0.0	0.0	1.5
Deliveries to Pasadena		0.0	0.0	0.0	139.5	-325.8	-222.9	-64.1	-87.3	-61.7	0.0	0.0	-160.6	-321.8	0.0	-42.4
Net Import/Export		0.0	0.0	0.0	139.5	-325.8	-222.9	-64.1	-87.3	-30.2	0.0	0.0	-141.8	-321.8	0.0	-40.9
Total Production for Retail Customers		617.7	752.8	776.9	663.5	776.6	904.2	816.3	828.8	792.1	861.9	762.5	849.0	907.2	833.2	800.0
Diversions in Acre-Feet																
Source		1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Holly High/Low Tunnel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	0.0	0.0	0.0	0.0	0.0
House Tunnel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	25.6	0.0	0.0	0.0	4.2
Kinneloa Canyon		140.7	50.2	54.3	56.8	48.6	52.1	33.4	28.9	12.2	9.5	31.2	40.4	45.4	27.2	21.4
Eucalyptus Tunnel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Brown		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9	16.7	0.0	0.0	0.0
Eaton Wash Sub Total		140.7	50.2	54.3	56.8	48.6	52.1	33.4	28.9	38.0	9.5	81.7	57.2	45.4	27.2	25.6

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Delores Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.4	31.1	21.5	44.5	0.0	0.0	0.0	0.0
Long Tunnel	35.8	37.2	39.2	39.2	38.9	37.7	38.1	38.0	36.0	35.3	46.8	44.7	37.4	36.0	34.3
Far Mesa Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	30.2	42.5	0.0	0.0
Glen Wash	429.3	396.3	262.5	321.3	359.1	174.8	156.7	52.7	26.7	28.1	933.9	161.4	74.0	56.7	59.0
Tent Tunnel	5.1	5.5	5.4	5.3	5.8	3.4	2.4	2.3	2.1	2.0	3.2	3.5	2.9	2.5	2.1
Pasadena Glen Sub Total	470.2	439.0	307.1	365.8	403.8	215.9	201.8	134.4	95.9	86.9	1028.5	239.8	156.7	95.2	95.4
Sierra Madre Villa DB Outflow	256.7	-32.8	-7.2	-33.7	0.0	0.0	0.0	0.0	0.0	0.0	-459.7	0.0	0.0	0.0	0.0
Net Pasadena Glen Sub Total	213.5	406.2	299.9	332.1	403.8	215.9	201.8	134.4	95.9	86.9	568.8	239.8	156.7	95.2	95.4
Total Diverted	354.2	456.4	354.2	388.9	452.4	268.0	235.2	163.3	133.9	96.4	650.5	297.0	202.1	122.4	121.0

Other Data	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Rainfall (inches)	43.61	22.64	22.8	52.29	14.46	18.82	20.04	7.86	24.48	10.12	58.00	21.79	5.81	24.61	16.10
Water Sales to Customers (Acre-Feet)	584.3	668.8	679.9	600.4	666.3	782.9	710.9	739.1	717.7	772.6	672.6	785.8	847.3	754.1	729.7
Water Loss (Acre-Feet)	33.4	84.0	97.0	63.1	110.3	121.3	105.4	89.7	74.4	89.3	89.8	63.2	59.9	79.1	70.3
Water Loss (%)	5.4	11.2	12.5	9.5	14.2	13.4	12.9	10.8	9.4	10.4	11.8	7.4	6.6	9.5	8.8
RBMB Long Term Storage Account (Acre-Feet)											326.9	847.9	728.6	797.9	790.0
Power (\$)					86,488	97,064	77,780	111,676	111,062	100,410	87,537	82,476	112,924	89,011	92,204
Power (\$ per Acre-Foot of Total Production)					78	86	88	122	135	116	115	83	92	107	110

Total Production from Wells and Tunnels July through June

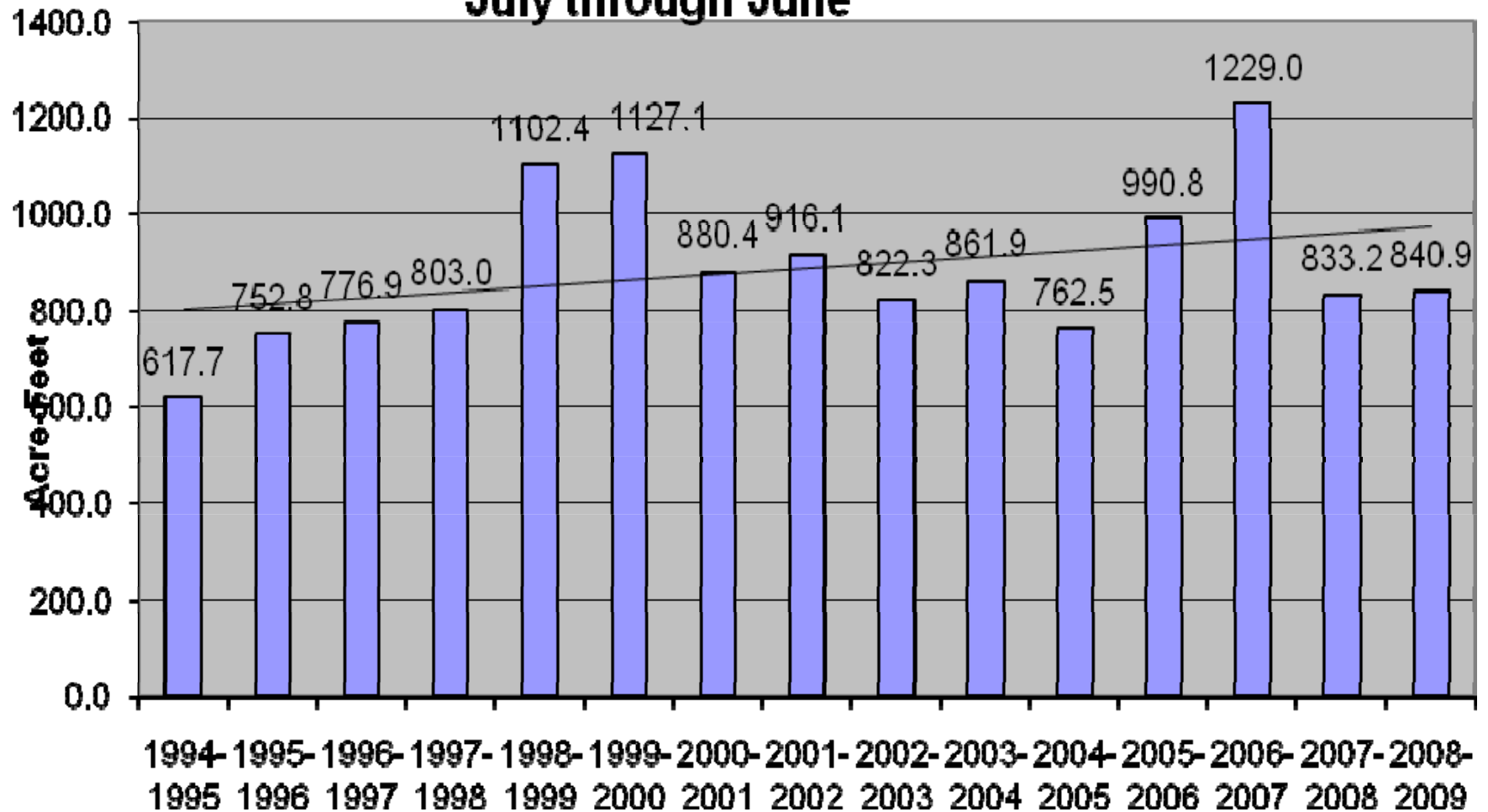


Figure 2 Total Production July through June

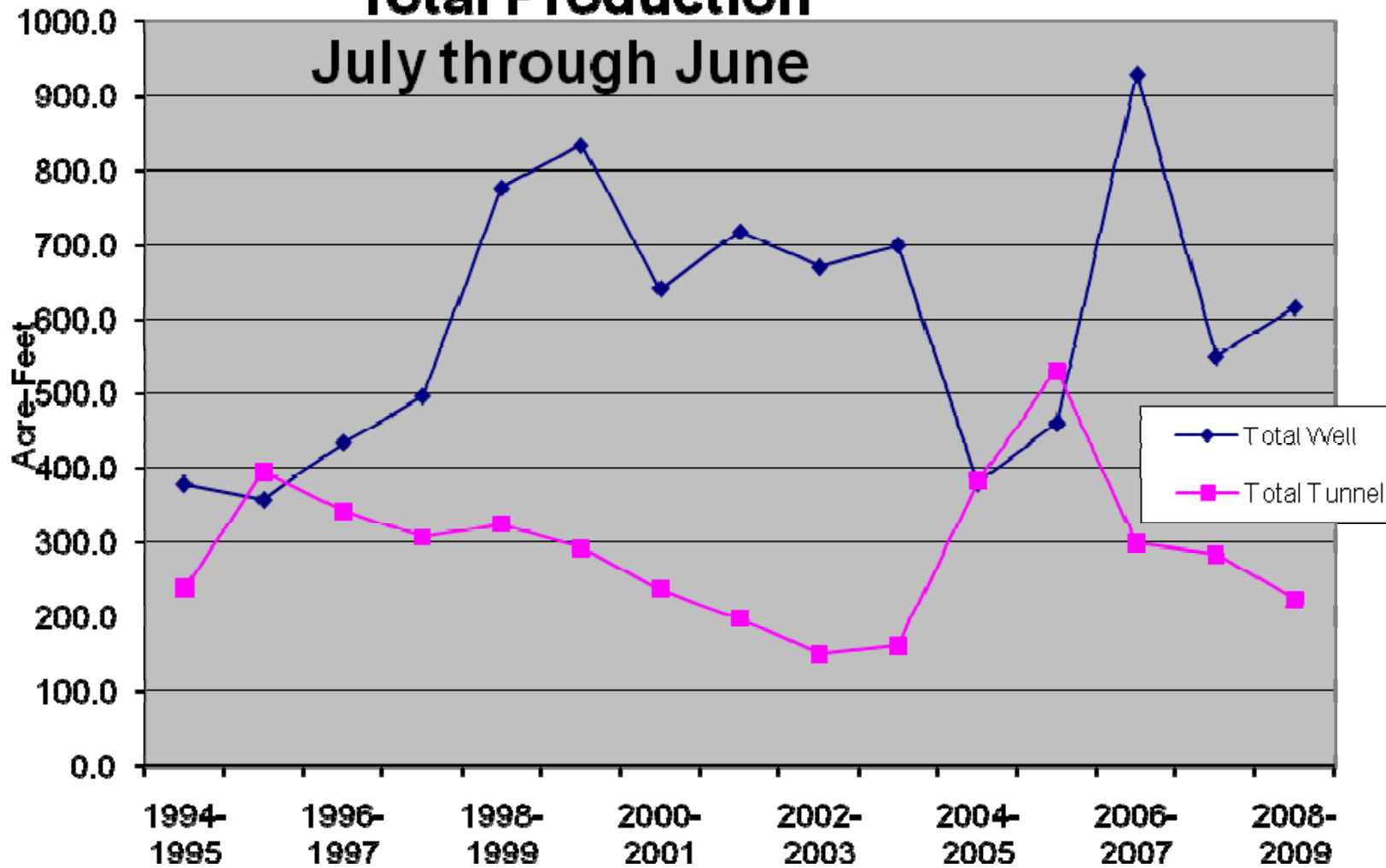


Figure 3 2008-2009 Production Sources July through June

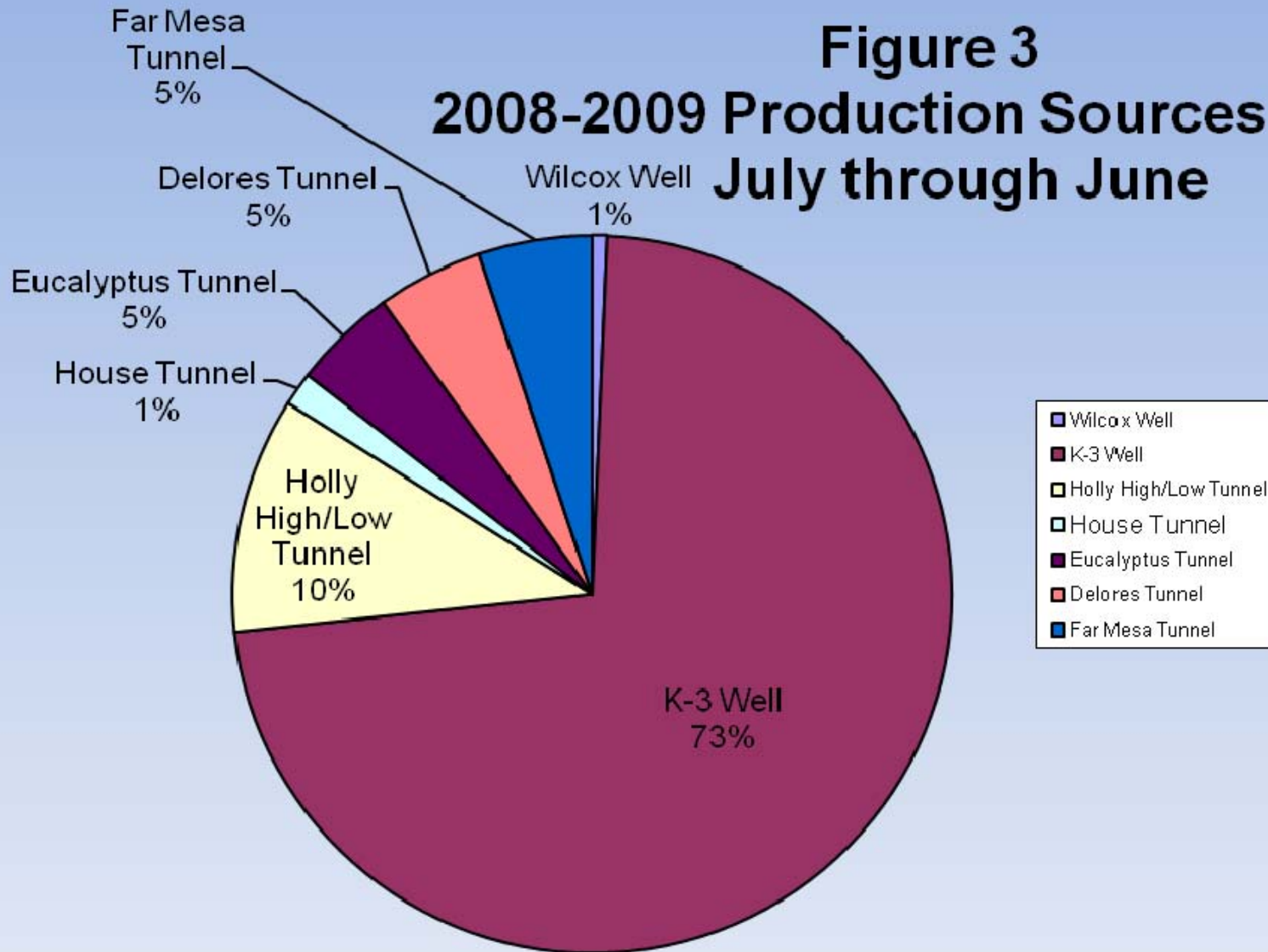
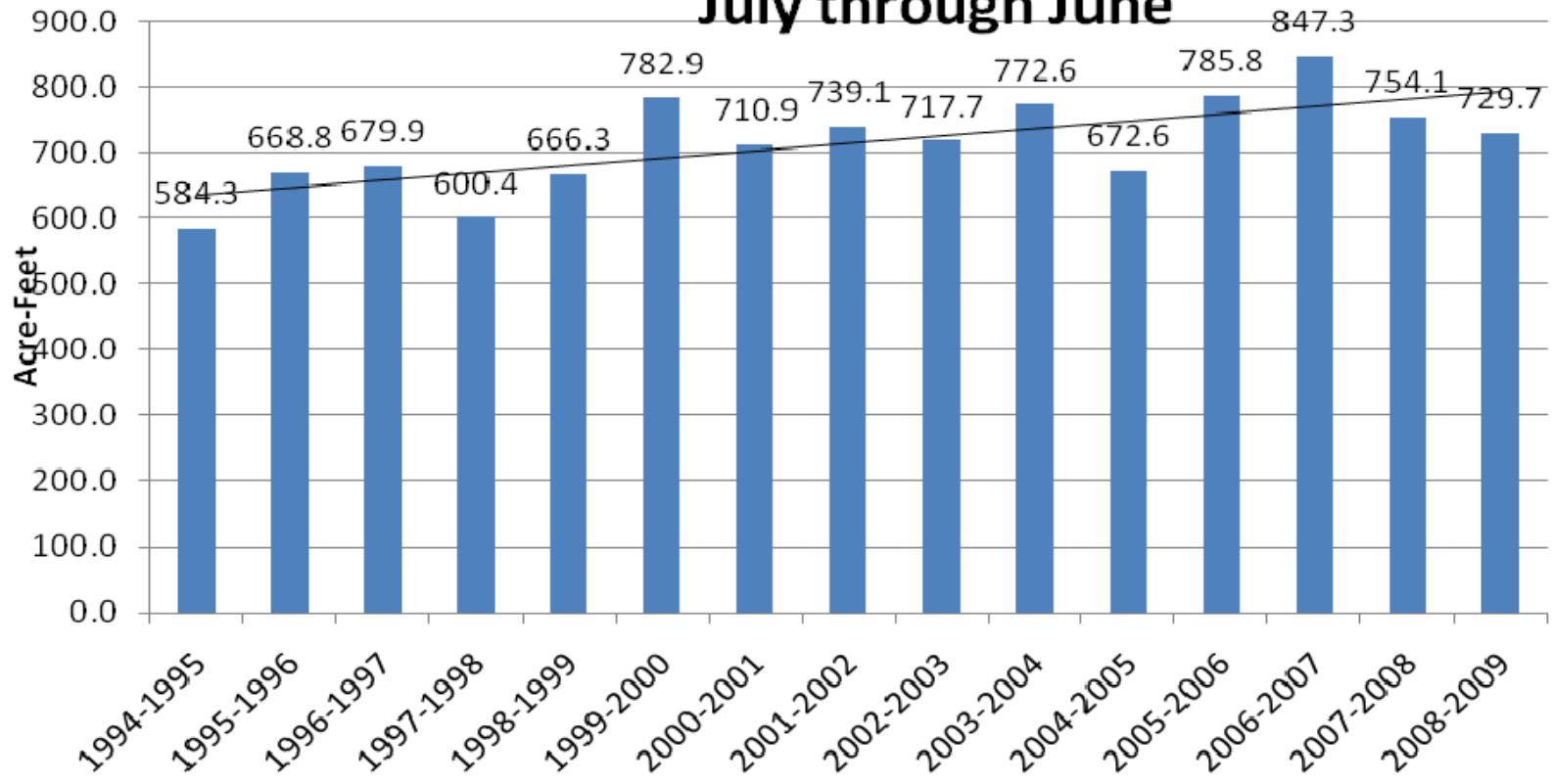


Figure 4 Annual Water Sales July through June



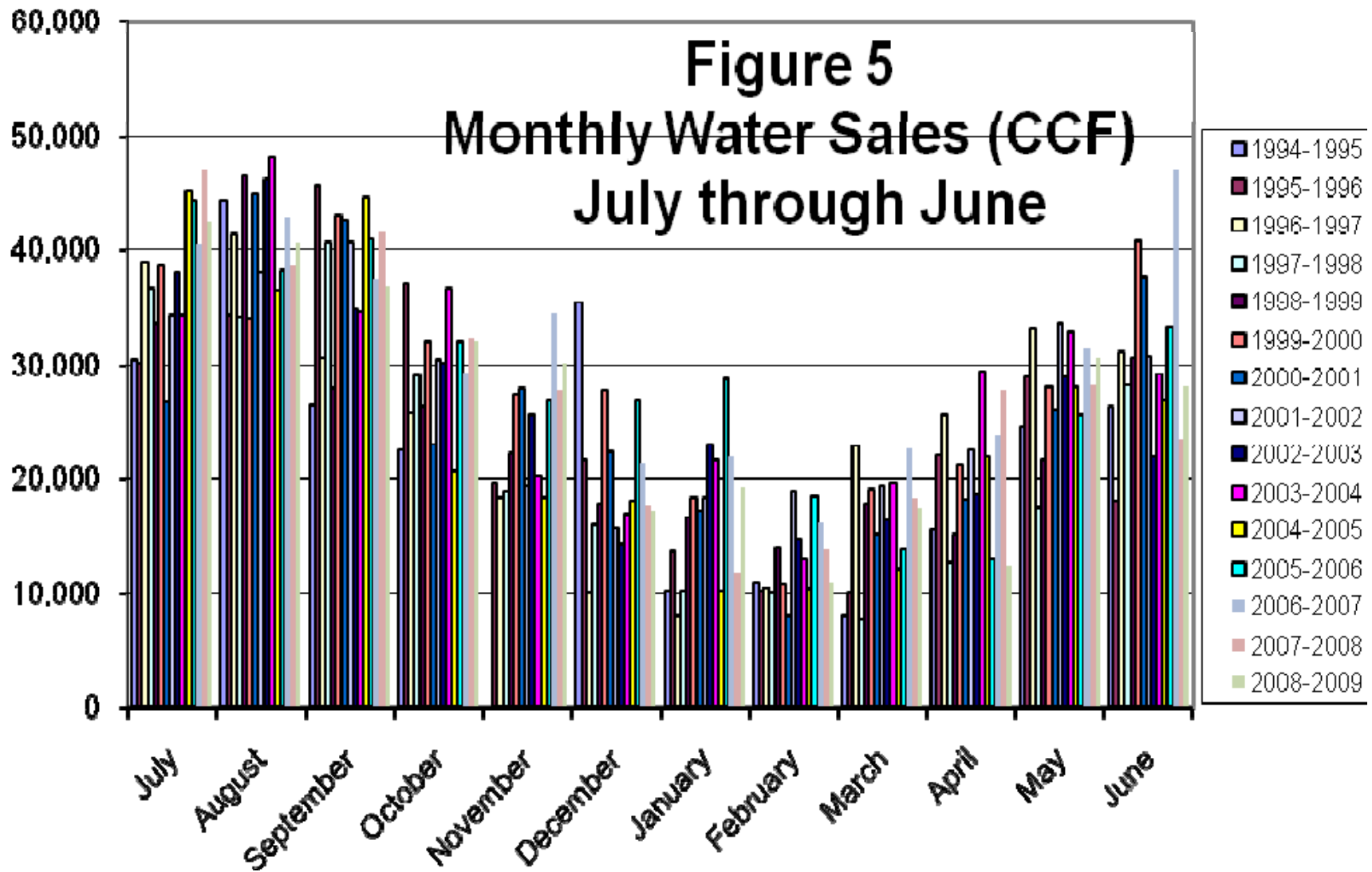


Figure 6 Water Usage for June

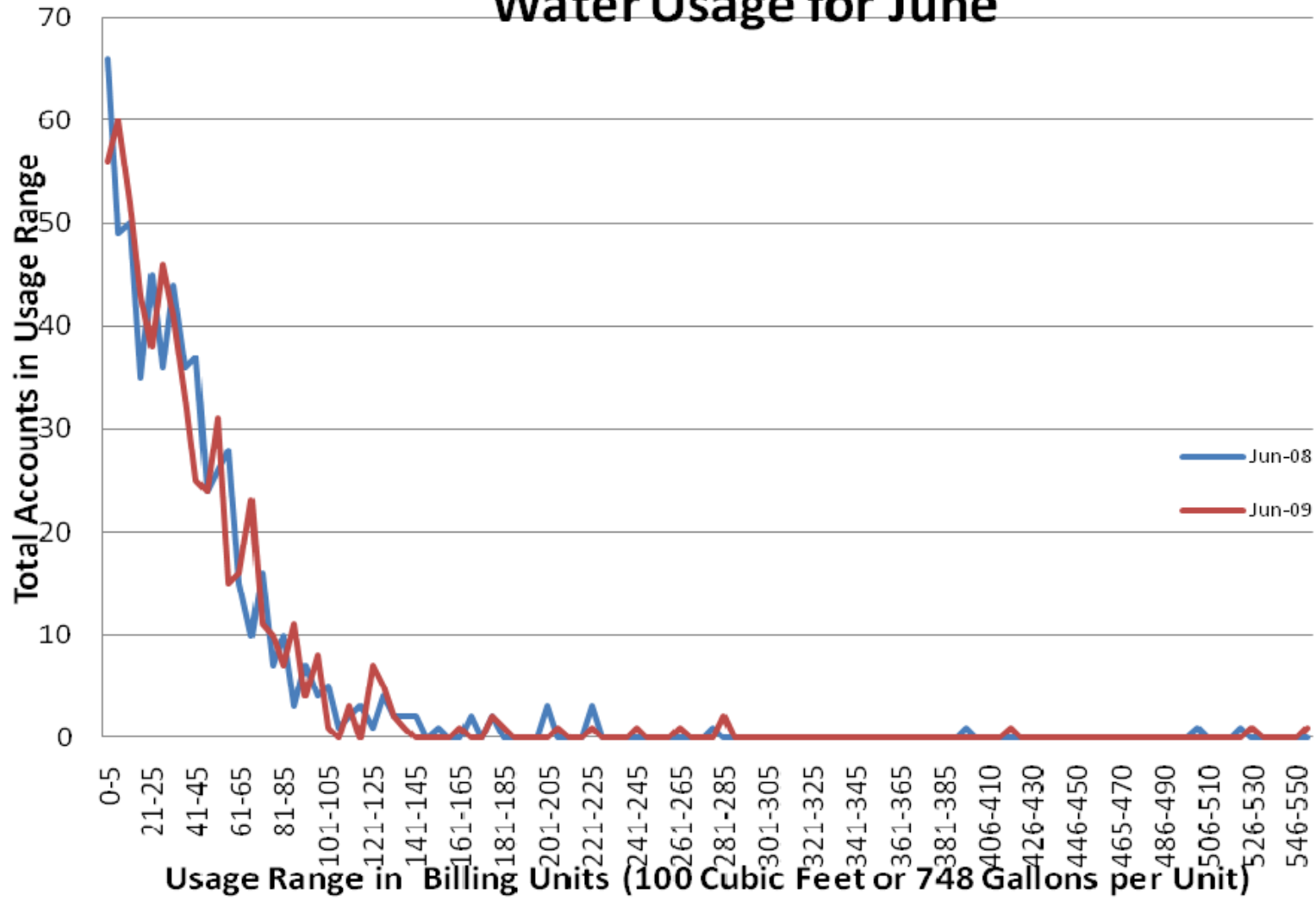


Figure 7 Rainfall July through June

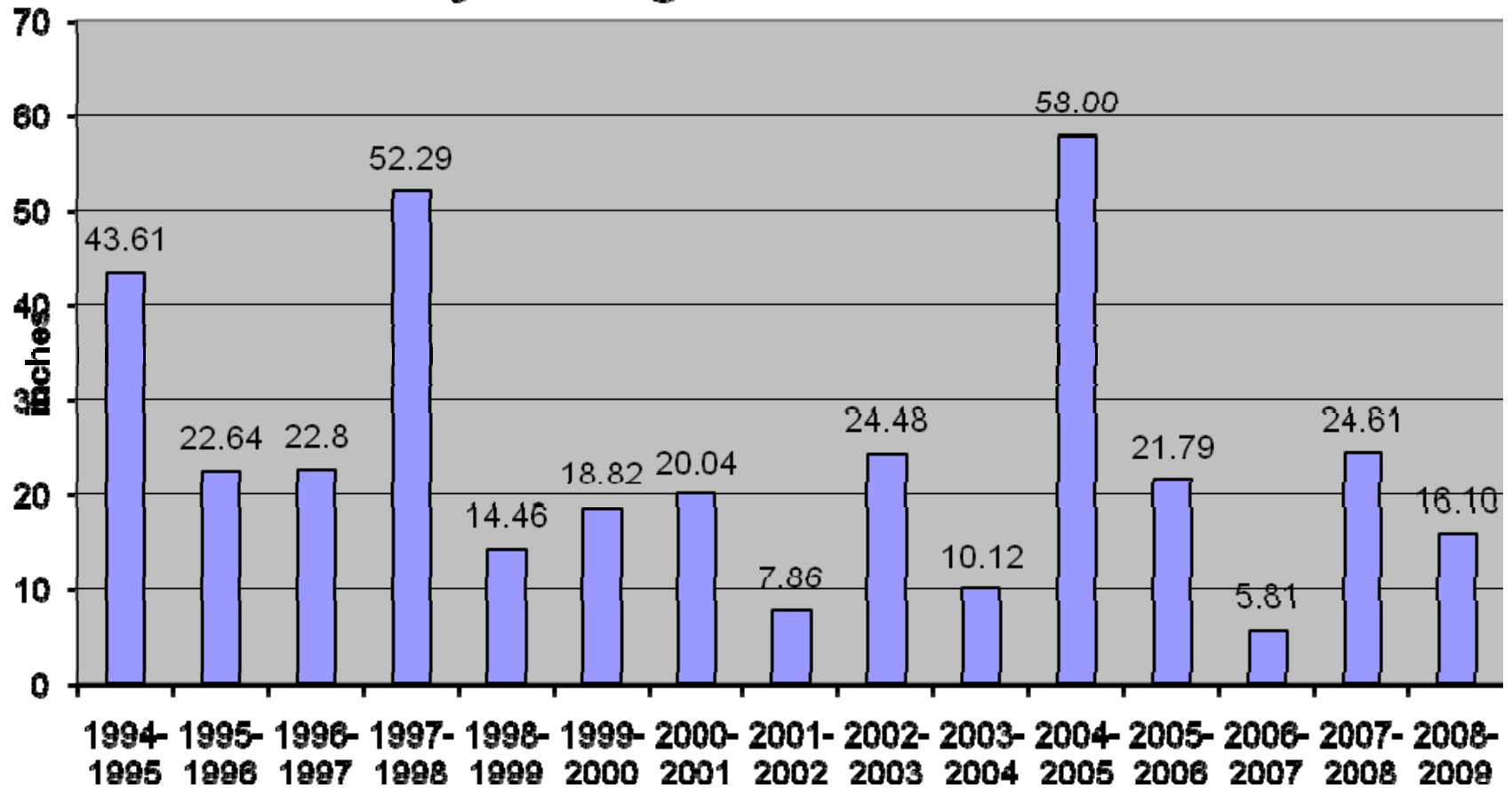


Figure 8
Power Cost in Dollars per Acre-Foot of
Total Production

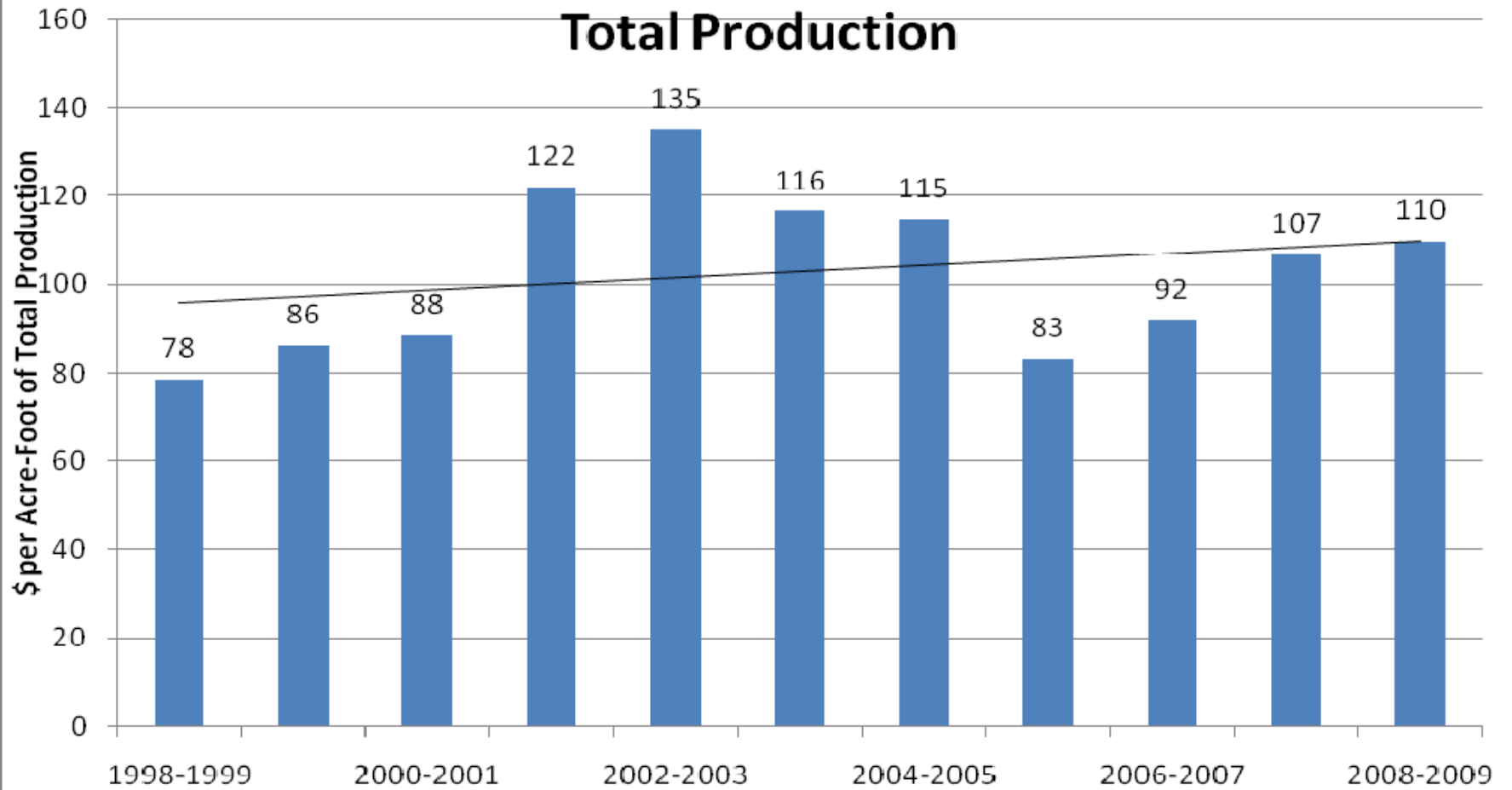


Figure 9 Long Term Storage

